

WILL PERMANENT PARANORMAL OBJECTS VINDICATE PARAPSYCHOLOGY? ¹

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The paper which follows was submitted as an entry for the Imich Essay prize in response to the question: What more does the scientific establishment require to accord parapsychology full recognition? The winning entry appeared in our April issue; the present essay was adjudged the runner-up.

—Editor.

ABSTRACT

It is widely recognized that what is needed to change the attitude of the scientific establishment toward psi research is some substantive evidence of paranormality. Without it, parapsychology can never become a science. Accordingly, it would probably be advisable to explore different methodologies from both experimental parapsychology and traditional psychical research on spontaneous cases. Since *theoretically* a permanent paranormal object (PPO) cannot be forged by normal means, it could be invoked as extraordinarily sound scientific evidence for extraordinary phenomena. Therefore, recent reports on possible PPOs deserve the attention of those concerned with bringing psi studies into mainstream science. Being palpable, measurable material things, these objects can be analyzed in recognized laboratories by many investigators, skeptics included, using the hard sciences—physics and chemistry. Due to the fact that their findings were published in mainline journals, the author focuses on the scientific testing of a medieval relic, the Turin Shroud, by a group of scientists and technicians who meticulously scrutinized it in 1978. However, the alleged thoughtographic appearances of Bélmez in Spain are better suited for parapsychological inquiry as they are available for further examination. *If* ostensible PPOs were subjected to a thorough scientific analysis—as has been done with the Shroud—and found to be genuine, the long-awaited breakthrough for the psi hypothesis might become reality.

Keywords: PPOs, TS, STURP, TAs.

AN ELUSIVE QUARRY

Today, just ten years from the millennium, recognition of parapsychology is still as troublesome for us as it was for Henry Sidgwick in his first Presidential Address to the newly-founded S.P.R. Generation upon generation has passed and we are still arguing about the validity of the evidence itself. ESP and PK are just as elusive as they have always been. In the epilogue of *The Elusive Quarry*, Ray Hyman (1989) concluded:

¹ The present article betokens my real intentions for having offered my speculative essay "The Turin Shroud: A Case of Retrocognitive Thoughtography?" to this journal (Tort, 1990a). Joe Nickell and Frank Tribbe have written letters to the editor attacking the latter from diametrically opposed points of view: Tribbe is a militant advocate of the Shroud's authenticity; Nickell a militant debunker from CSICOP; and I am neither (their letters and my response appeared in the July 1990 issue—see also the correspondence in the October issue, and Perry, 1990).

Do Psi and Paranormal Phenomena Exist?

My short answer to this is that I do not have the faintest idea. Psychical researchers and parapsychologists have been trying for approximately 140 years to build a scientific case for psi. At best, the situation is still equivocal. In my opinion, the parapsychologists must first put their own house in order before they invite the rest of the scientific community to come in to inspect their wares.

Even if we grant the parapsychologists their claim that they have at least established the existence of an anomaly of some sort, they still have a long way to go before they can tame this anomaly and specify at least some conditions under which we have a reasonable chance of observing it. If what they say is correct, then they are dealing with a very erratic and elusive phenomenon. Indeed, we do not know if they are dealing with a single phenomenon or several possibly unrelated phenomena.

I suspect that the question of psi's existence is not going to be resolved . . . in our lifetime . . .

I urge patience and more patience. No one has yet put us into a position where we have to decide one way or another. Much of the bitterness of current and past controversies, I believe, is because rash partisans on both sides of the issue have acted as if they had to decide the question *now*. Such a sense of urgency, along with the desire to settle matters once and for all, makes for very bad science. [emphasis Hyman, pp.442-3].

Dr Hyman chairs the parapsychology subcommittee of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), and is one of the most respected critics among both skeptics and believers alike. I recommend that those who are under the impression that every skeptic's attitude is closed-minded should read the above-mentioned book: a fair-minded commentary on parapsychologists' claims by a knowledgeable skeptic.

It is widely agreed that no general acceptance of paranormal phenomena can be expected until at least one repeatable psi effect can be unambiguously demonstrated; that the crucial repeatable experiment has proven to be a theoretical mirage; and that this lack of repeatability by the majority of scientists invalidates the claim that paranormality has been established. Although it is true that the scientific establishment has not dared to examine properly the present evidence for psi, its mere presentation cannot make any impression on them since considerable work is required to digest it. Furthermore, the few *responsible* critics who have taken on the 'heroic' task of digesting the so-called best evidence remain unimpressed as well (see for example the Hyman/Honorton debate in *JP*—Hyman, 1985; Honorton, 1985; Hyman & Honorton, 1986; see also Alcock's 1990 in-depth criticism of the Schmidt and Jahn REG studies). And how many scientists followed the ultra-professional mysteries of the *JP* debate? Experimental parapsychologists have developed a rather dull quantitative body of knowledge to present to their current critics—not to mention outside scientists—for their appraisal.

Whereas dry statistics are unpersuasive to them, those who believe in the superiority of the earlier literature as evidence for psi (e.g. Braude, 1986) would do well to be more patient with skeptics' aprioristic dismissal of such extreme anomalous phenomena as apparitions, physical mediumship and the like, as spontaneous cases are broadly intertwined with the mass media,

crassly popular books, and the continuing growth of New Age nonsense. Indeed, the very term *parapsychology* has acquired repelling connotations for scientists, and for the layman, whose knowledge of the serious research is practically nil, it is synonymous with occultism. For this very reason—and despite strong opinions to the contrary—after a century-old tradition of paranormal studies the skeptical position remains open and valid. It may not be premature to state that the Rhinean school's enterprise of demonstrating psi through statistical analyses suffered a similar fate to early psychical research in demonstrating survival through spiritism.

If the parapsychological community wants to be taken seriously and considered a part of mainstream science, it is probably wise to break away from J. B. Rhine's *Diktat* concerning methodology (see White, 1990, esp. pp. 7-10).

AN INNOVATIVE STRATEGY IN THE HUNT FOR THE ELUSIVE QUARRY

Many have lamented the continuing impasse in the field; however, a discovery that unequivocally demonstrated psi's existence would obviously break it. By curious coincidence my article on the Shroud of Turin appeared after Bernhard Wälti's (1990a) in the same issue of this journal. Both deal with possible permanent paranormal objects, or PPOs for short. A PPO is: 'one that *could not* have been produced normally no matter how ingenious the forger and no matter what its origins' (Beloff, 1984, p. 3). A clarification of this theoretical definition is in order. Even though, at first thought, it seems that by-products of psychokinetic metal-bending (PKMB) are PPOs, metal-bending *can* be induced by normal means. Moreover, since Randi's (1982) exposé of Uri Geller strikes many as the most plausible and commonsensical explanation for most of the claimed PKMB effects, the bent and broken spoons may be regarded simply as permanent *normal* objects. On the other hand, unlike the Geller effect, there are reasonable grounds for regarding Ted Serios' 'thoughtographs' as authentic (Eisenbud, 1989); but they can nevertheless—just as can PKMB—be easily replicated by normal means. A lab analysis would not detect significant differences between thoughtographs and ordinary photographs. The Serios productions are therefore imperfect PPOs.

In marked contrast with the fake and genuine objects mentioned above, if scientists of the paranormal had in their hands even one 'perfect' PPO, psi would not be any more an elusive quarry but a *hunted* one: they would have no less than physical evidence of paranormality. John Beloff wrote in his recently-published book, *The Relentless Question* (1990a):—

I come lastly to a strategy which would certainly be decisive if only it could be realized. It is one I have discussed before and it concerns the production of a permanent paranormal object . . . The classic case is that of the linkage of two seamless rings [of distinct natural materials]—a topological miracle . . .

The peculiar advantages of the PPO are obvious. Its paranormality does not depend on any particular person's testimony nor on the conditions under which it was produced. It can be examined at leisure, using as many devices as necessary, by as many experts as one may care to nominate. With any other kind of evidence, strong or weak, the onus of proof is always on those who claim paranormality; in the case of a PPO the onus lies with the skeptic to show, if he can, that the object in question is a normal artifact. [p.200]

I shall not discuss here the apparent 'topological miracle' produced by Silvio Meyer (Wälti, 1990a; see also Cox, 1990a), nor those produced during the mediumship of 'Margery' (see for example Beloff, 1990a, pp. 183-4), nor the one owned by W. E. Cox (1990, p.253); because Wälti's report is only preliminary², the 'Margery' productions are no longer in existence, and Cox's rings have still to undergo topological examination. The one I have chosen to illustrate my theme is the hotly-controversial religious relic Turin Shroud (TS).

The TS is a large piece of linen bearing a faint yellowish and detailed image, front and back, of a man who appears to have suffered whipping and crucifixion³ (for high-quality photographs see *National Geographic*, 1980). Carbon-14 dating recently revealed that this most venerated cloth was made in about the middle of the fourteenth century (Damon *et al.*, 1989); thus it cannot be, as entrenched pro-authenticity advocates continue to proclaim, the miraculous burial-cloth of Christ. Nonetheless, it causes me no great intellectual perturbation to interpret this still-inexplicable image (for orthodox science) in the genre of 'thoughtographic appearances'⁴ (Tort, 1990a; see also Tort, 1990c). (Occasional remarks on the possible thoughtographic origin of TS can be found in Osis, 1985, pp. 449-50; Schwarz, 1968, p.144; and esp. Rogo, 1982, pp.135-40.)⁵ Thoughtographic appearances (TAs), or paranormal imaging on non-light-sensitive surfaces, refer to the imaged apparitions of faces *and even complete human figures* on plain surfaces such as walls, windows, mirrors or cloth (see for example Alvarado, 1983).

It may seem rather odd to regard a Catholic relic as a PPO, but sindonologists⁶ Luigi Gonella, Rex Morgan and Charles Foley have referred to TS as 'an impossible object', a 'perpetual miracle', and an 'intrinsically unfakeable [object]' respectively (Gonella [in Morgan, 1990]; Morgan, 1980; Foley, 1983)—reminiscent concepts of the parapsychological PPO. And the title of an article in *Science* journal is suggestive of this very idea: 'The Mystery of the Shroud of Turin Challenges 20th-Century Science' (Culliton, 1978). Even skeptics have acknowledged that sindonology is different from pseudo-sciences. States *The Skeptical Inquirer* :—

² Both the 'Margery' and the Silvio objects have been categorized as topological impossibilities and therefore perfect PPOs. However, M. H. Coleman (personal communication, 1990) is now actively attempting to produce a fake object indistinguishable from Silvio's linked squares of paper and aluminum foil. And Martin Gardner has offered a natural explanation as to how they could have been fabricated (see his Note in this issue, pp.43-44). On the other hand, examinations in Munich with a radioactive electron area source, as well as experiments to cold-weld aluminum under pressure, will be described in a second report by Bernard Wälti (personal communication, 1990b).

³ Since this paper deals exclusively with the hard sciences, my liberal speculative use of the opinion of some physicians (i.e. the 'retrocognitive' side of my hypothesis—Tort, 1990a, pp.74-5, 78-9) will not be discussed.

⁴ This compound expression was chosen to differentiate these phenomena from classical *thoughtography*: the productions of Ted Serios discussed by Eisenbud (1989).

⁵ When all conventional hypotheses on how the images came to be were discarded in the late 1970s, John Jackson, the chief investigator of STURP (below) practically as a last resort turned to Jule Eisenbud to see if there could be any conceivable connection between thoughtography and TS, but remained skeptical of such a suggestion (there are not many patent similarities between the Serios-type thoughtographs and TAs).

⁶ Sindonologists are researchers and scientists who study TS (*sindōn* is Greek for shroud or burial garment).

The Shroud of Turin example surpasses UFOs, the Bermuda Triangle, and ancient astronauts in a number of interesting ways. First, the shroud really does exist; it was displayed to millions of pilgrims in 1978. Second, we were recently treated to the unprecedented spectacle of a team of serious United States scientists who traveled to Italy to deliberately examine this notorious religious relic. Third, many of their findings were published in legitimate scientific journals. [Schaefersman, 1982, pp.37-38]

THE SHROUD OF TURIN RESEARCH PROJECT

This paper presents the findings from such journals to the parapsychological community not to vindicate the relic in the face of its reliable carbon-dating, but rather to use the work of the American scientists known as the Shroud of Turin Research Project (STURP) as a model for potential future studies on ostensible PPOs, and to show that STURP data offer persuasive evidence that TS is precisely a PPO⁷. This statement will surely cause a stir among those who, like Joe Nickell, have been actively promulgating the view that the sindonic figure is the work of medieval craftsmanship⁸. However, since I have recently answered Nickell in this journal (see exchange in the July 1990 issue) the time has come to address the other published hoax hypothesis.

Walter McCrone, one of the world's foremost microscopists and once a member of STURP, by direct microscopical examination of sticky-tape samples from TS threads reported finding sub-micron-sized particles of ferric oxide (Fe_2O_3) throughout the image area, but none on the clear area. (Ferric oxide is nothing other than rust and is found in practically all the dust in the world.) McCrone concluded that this iron oxide was the residue of a rouge used by medieval painters. Aware that if this material had been applied as a paint it should have been integrated with an organic binder agent, McCrone applied a standard test in painting analysis: staining samples with amido black to see if this would prove positive for protein. According to him it confirmed the presence of a tempera paint. The implication seemed self-evident: 'We now believe that the Shroud image is made up of uniformly colored fibers (by some yet unknown mechanism) and a red iron earth pigment skilfully applied by hand' (McCrone & Skirius, 1980, unpagged). As if this weren't enough, McCrone also found diverse pigment particles distributed among the samples: orpiment, azurite, wood charcoal, madder rose and larger quantities of vermilion (McCrone, 1980; 1981). (McCrone's reports contain high-resolution color photomicrographs.)

As to date, approximately twenty reports in mainstream scientific journals and ten more in sindonological journals have been published by STURP as the result of an impressive battery of tests on TS performed during the 1978 expedition to Turin, Italy. Considerable portions of these reports range from the very opposite conclusions to McCrone's to its direct rebuttal. As Schwalbe

⁷ As it is a non-profit organization, STURP research is a product of volunteer efforts by the project members. A description of STURP is given in D'Muhala *et al.* (1984, pp.12-15). '[T]he sole intent of STURP is to conduct unbiased scientific investigations of the Shroud as per classical scientific method.' (*ibid.*, p.12)

⁸ Based on his shroud-like rubbings from bas-relief sculptures, since the late 1970s Nickell has concluded that TS is the handiwork of a clever artist using powdered pigments (see for example Nickell, 1987, chap.9).

and Rogers (1982, p.31) point out:—

There has been no evidence found to suggest that the visible image results from colored foreign material on the cloth. In this regard, the data are quite internally consistent. (1) Microscopic studies have revealed the image to be highly superficial; the image resides in the topmost fibers of the woven material as a translucent yellow discoloration. No pigment particles can be resolved by direct Shroud observation at 50X magnification, nor can unambiguously identified pigment particles be found on the tape samples at 1000X [Pellicori & Evans, 1981; Heller & Adler, 1981]. (2) Microchemical studies of yellow fibrils taken from tape samples of the pure-image area have shown no indication for the presence of dyes, stains, inorganic pigments, or protein-, starch-, or wax-based painting media [Heller & Adler, 1981]. (3) X-ray fluorescence shows no detectable difference in elemental composition between image and non-image areas [Morris, Schwalbe & London, 1980]. (4) Spectrophotometric reflectance reveals none of the characteristic spectral features of pigments or dyes [Gilbert & Gilbert, 1980; see also Pellicori, 1980; and Accetta & Baumgart, 1980]. (5) Ultraviolet fluorescence shows no indication of aromatic dyes or aromatic amino-acids that might be expected from animal-collagen pigment binders [Miller & Pellicori, 1981; see also Gilbert & Gilbert, 1980]. (6) Direct visual observations of image areas that intersect scorch and water stains reveal nothing that might suggest the presence of organic dyes or wax-, protein-, or starch-based painting media [Jumper, Adler, Jackson, Pellicori, Heller & Druzik, 1984].

Put together, all of the above tests were more than enough to unmask an artistic or archaeological forgery. Furthermore, computer image enhancement shows that the images have three-dimensional information encoded in them, which reduces even more the possibility that the image is either an ordinary painting or a rubbing *à la* Nickell (Jackson, Jumper & Ercoline, 1982; 1984).

STURP concluded that the yellow fibers were the product of dehydration and oxidation, the common cause of ageing of cloth, which means that there is actually nothing on the imaged linen⁹. *The crux of the STURP examination, however, lies in TS's resistance against explanation: no one can explain how the somatic image was formed* (Schwalbe & Rogers, 1982, pp. 44-5; Jumper, Adler, Jackson, Pellicori, Heller & Druzik, 1984, p. 474; Jackson, Jumper & Ercoline, 1984, p. 2269; Heller & Adler, 1981, p. 100; Jackson, 1990, pp. 3-5).

Briefly stated, we seem to know what the image is chemically, but how it got there remains a mystery. The dilemma is not one of choosing from among a variety of likely transfer mechanisms but rather that no technologically-credible process has been postulated that satisfies all the characteristics of the existing image. [Schwalbe & Rogers, 1982, p. 45]

What is more, scientists cannot duplicate the image even with modern technology at their command (Jackson, 1988, p. 11)—see definition of PPO above.

To attempt to explain STURP and McCrone's astonishingly contradictory verdicts it must be noted that TS is known to have been copied by artists—artists who were its copyists, not its creators—and therefore frequently exposed to pigment contamination (I have already addressed this issue in my response to Nickell, 1990—Tort, 1990b; see also Fossati, 1984a; 1984b; 1988). (The

⁹ States STURP after the medieval carbon-dating results: 'Our conclusion that the image on the cloth is not the result of applied materials, but rather is due to an oxidation of the cellulose molecules that made up the flax, is still valid and correct.' (cited in Tribbe, 1989, p. 69)

many plates in the Fossati papers clearly show the visual gulf between the photonegative, life-like original and the direct copies of TS that have been made in recent centuries.) Although Heller and Adler (1981) identified the same substances McCrone had observed in the same TS samples—protein, iron oxide and vermilion—STURP's forty scientists are unanimous in rejecting the painting hypothesis. In response to McCrone, Heller and Adler (1981) indicated:—

To establish the validity of a painting hypothesis it is necessary, but not sufficient, to identify such materials. One must also demonstrate that they are present in sufficient quantities and in such locations as to account for what is seen. Further, it must be shown that their presence cannot be more simply accounted for by other processes. Still further, one's conclusions must be in accord with other studies; specifically, in this instance, the physical and image-analysis investigations. [p.99]

Yet McCrone maintains that if all iron-earth pigment plus tempera medium were removed there would be no image on the cloth (McCrone, 1981, unpagged) — but he has not responded to the above arguments. Besides, the artistic hypotheses are so disparate that the skeptics disagree among themselves. For instance, in a public lecture in 1986 at Elizabethtown College, Pennsylvania, McCrone's conclusion was that Nickell's rubbing technique was not a viable explanation for the TS image. On the other hand, Nickell has always dismissed the idea that the image is an *ordinary* painting (which is none other than McCrone's facile theory). And it is noteworthy that even after the 1988 carbon-dating exposé of the venerated relic McCrone continues to complain: 'Now, no one believes the "shroud" was painted' (McCrone, 1990, p.6). Moreover, McCrone and Nickell are not alone in trying to account for the image by means of natural processes: they are joined by an American research physicist at the Los Alamos National Laboratory. Marvin Mueller was the first scientist to criticize the STURP investigation (Mueller, 1982; reprinted in Frazier, 1986, pp.324-43), and also contributed a chapter to Nickell's *Inquest on the Shroud of Turin* (Nickell, 1987, pp.85-94). However, in a five-page letter Dr Mueller has recently answered my questions concerning his current views on the case, which has been published *in toto* in a sindonological newsletter (Mueller, 1990). He wrote:—

As you know, for many years now I have regarded the Shroud image to be a genuine mystery—but only a technological/artistic one as opposed to the transcendental mystery proposed by so many for so long¹⁰. While the mystery has deepened since November 1981, when I wrote the *Skeptical Inquirer* article [Mueller, 1982], my opinions have not changed very much since then. Even then, as a careful reading will show, I was rather sceptical towards the separate claims of Nickell and McCrone that they had solved the mystery, and I proffered a somewhat different (but rather non-specific) hypothesis of image formation¹¹. By now, I've become even more certain that neither Nickell nor McCrone has solved it, although the possibility remains that Nickell might be on the right track methodologically. So I find myself somewhere between the STURP and the CSICOP camps on the image issue—and somewhat *persona non grata* to both.

¹⁰ This is not the paranormal hypothesis (Tort, 1990a) but the supernatural one discussed below (Jackson, 1990). (Supernaturalism and paranormalism are *not* synonymous.)

¹¹ This variant of the rubbing technique (Mueller, 1990; see also Mueller, 1982, p.30 = Frazier, 1986, p.339) has not been tested yet.

What Jackson in particular and other STURP members in general have done is to demonstrate beyond reasonable doubt that the Shroud image is indeed a real mystery. And the [carbon-] dating of the flax from which the cloth was made to post-1200 AD with scientific certitude does not essentially alter that mystery – although it does recategorize it from the possibly epochal to the probably mundane. [p.3]

However, an already-existent image must be explained; and given the absence of a conventional hypothesis of image formation it may not be inappropriate to venture into an unconventional – though non-supernatural – model (Tort, 1990a). It must be conceded notwithstanding that regardless of how impressive STURP work appears, its members are biased towards the supernatural¹², and their observations have not been independently verified (neither have McCrone's). One of the basic precepts of science is that any given observation should be amenable to verification by others in the scientific community. Technically, this is the *only* way to resolve definitively the discrepancy between McCrone and STURP. In spite of this, I am satisfied there is already sufficient data to regard TS as a PPO, at least as a working hypothesis¹³. But, since the Vatican owns this relic and permission to test it is tightly restricted¹⁴, investigators of paranormal phenomena are advised to look elsewhere for a hands-on study of an ostensible PPO. A secular case would be better suited for unbiased investigation.

THE 'WALL FACE' APPEARANCES OF BÉLMEZ

The eerie faces of Bélmez de la Moraleda, a little town in the province of Jaén, Spain, are still in existence (Martínez, personal communication, 1990). These 'wall face' appearances have plagued a local family's house since 1971. Andrew MacKenzie, who investigated the case *in situ* in 1983 and believes it is a genuine one, concludes: 'I consider the case of the House of the Faces to have been the most remarkable that has come my way in twenty-five years of investigations into spontaneous manifestations of the paranormal' (MacKenzie, 1987, p.41). However, after two decades of uninterrupted material manifestations these alleged TAs could hardly be labeled 'spontaneous'.

That the phenomenon bears some resemblance to classical thoughtography is suggested by a newspaper reporter: 'María's [the owner of the house] sensations are transmitted onto the cement with the ease of a photographer capturing an image' (Cárdenas, 1990, p.2). Although some faces have faded out, others have remained and still more are emerging. Actually, the 'House of the Faces' resembles a gallery in which the displays are constantly changing. The most recent appearances occurred in August/September of 1989:—

¹² The strong religious and apologetic motivation of nearly all sindonologists – the STURP membership included – led to their suggestion that the image resulted from a burst of energy irradiated from Christ's body at the very moment of resurrection. The 'radiation/collapse' hypothesis recently reappeared in technical fashion in the 1989 International Scientific Symposium on sindonology held in Paris (Jackson, 1990). However, the great majority of scientists have now discarded it on the basis of the carbon-dating of the linen (Damon *et al.*, 1989).

¹³ Schwalbe and Rogers' comprehensive summary (1982) reviews the rather substantial collection of available STURP scientific observation. It is essential reading for anyone seeking to construct an objective appraisal of both sides of the debate.

¹⁴ On August 18, 1990 the Vatican announced that it would begin to consider proposals for further testing (for TS research in the 1990s, see Schwalbe, 1990).

The phenomenon of the Bélmez faces has become even more controversial with the appearance of new faces. It has been 18 years since the first ones appeared . . .

More than five faces, the majority profiles of coloured women . . . have appeared in the hallway of the house . . .

The complete figure of a woman marks a new phase in this case, since it represents the largest apparition as yet; due to its large amount of detail and the site on which it appeared . . .

This recent appearance occurred immediately after some minor repairs to the house's plumbing . . . by the Pereira family . . . [The faces and body] have appeared precisely on the new floor. [Caparros, 1989, p. 13; this and other translations are mine.]

Despite the fact that the new appearances surpass the already-existent appearances in terms of size and detail, José Martínez, a local investigator from Jaén, considers the TAs to be related to the poor health of María de Pereira, the purported agent, who is now 72. 'And once María disappears the phenomenon will disappear with her' (Martínez, quoted in MacKenzie, 1987, p. 30). If this proves to be the case, the TAs may be regarded as *semi-permanent* paranormal objects.

Here I must mention Spanish psychologist J. L. Jordán's critical view of the Bélmez case. A commission headed by Jordán reported in 1972 that a face showed traces of pigments of a grayish substance. 'Regarding another face, we are told that it was determined that it was done with a fine paint-brush and a mixture of soot and vinegar. [They] could even determine the size of the brush hairs . . . used to paint the face' (Jordán, cited in Alvarado, 1985, p. 372). Since in the most thorough account of the Bélmez case in English, MacKenzie replied to Jordán's assertions, it is unnecessary to reiterate his arguments here (see MacKenzie, 1987, postscript); suffice it to say that analyses made by another commission reached opposite conclusions. In 1975 cement blocks bearing a face called *La Pelona* were removed for analysis. Chemical tests were performed by a group of researchers in the Hydrological and Mineralogical Institute of Valencia, Spain, who discovered that 'the drawing of the face and features is made up of a melanocratic substance'—predominantly dark mineral constituents of igneous rocks (Cabarrocas, 1976, p. 24). A report on the Valencia findings was issued in *Psi Comunicación*, the journal of the Spanish Society for Parapsychology, where Jordán himself is on the Board of Directors. No silver nitrate—which can be used to produce faces fraudulently—or other abnormal chemical compounds were found on the samples studied (Alonso, 1976). In their official communication to the public one member of the Valencia team even suggested the phenomenon to be a psychic 'infestation'.

As can be seen, the astonishingly contradictory verdicts between Jordán and the Valencia team are reminiscent of those of McCrone and STURP! Further analyses on another face, however, were performed by Enrique Rodríguez, Director of the Center for Psychobiological Studies in Brazil, and spectrochemical tests revealed 'no trace of aniline pigment' (Rodríguez, quoted in Martínez, 1978, p. 136). In his book *Las Caras de Bélmez*, Martínez presents additional arguments against forgery, among which are an interview with a painter and the sealing by a notary of the rooms where the faces had been appearing. More interestingly, some investigators witnessed and photographed the phenomena in the process of formation (Martínez, 1978).

(Martínez's book is entirely devoted to the Bélmez case; though it has not been translated from Spanish, it has been fairly reviewed in English by Carlos Alvarado, 1983). Adding to the confusion, Martínez has sent me a newspaper article with photos of the most recent appearances (Cárdenas, 1990) as well as some of his own photographs of the older manifestations. Were I to judge by visual impact alone, I would wager they were ordinary paintings made by a shoddy forger! Nonetheless, Martínez is definite in his view that they cannot be paintings: he himself witnessed the formation of one of the older TAs (Martínez, 1987, pp. 138-9; personal communication, 1990).

Obviously, further laboratory examination is badly needed. Since neither Jordán nor the Valencia team have published their findings in professional literature (McCrone's and STURP's high-power tests were a far cry from those of their Spanish colleagues), it would be of great help if an independent research team carried out more formal analyses. These would consist of taking out more cement blocks from the hallway material containing figures such as the above-mentioned women and running new tests. The hypothesis that these suspicious 'picture-like' figures are of paranormal origin is falsifiable—a scientific requirement so justly demanded by skeptics. The labs could definitively reveal whether the images were produced by an eye/brain/hand co-ordination sense, or, as happened with TS, physicists and chemists might simply fail to explain how the image got on the material surface. A similar result in the Bélmez case would not prove *per se* a paranormal physical effect, but could attract the attention of more investigators, including skeptics, to undertake a more definite research project. Later, if the iconographic inexplicability of the objects is established, it could lead to their being recognized as psychokinetic by-products and thus gain the acceptance of outside scientists (there is no way of proving paranormality other than by demonstrating 'not normality').

Both Martínez (1987, p. 7) and MacKenzie (1987, p. 40) have complained that this case should have been investigated more thoroughly than it was; and Alvarado (1983, p. 38) pointed out that TAs in general have received little attention among parapsychologists. Of course, nobody had had the seemingly quixotic idea of using these material objects for the creation of a body of data powerful enough to convince even hard-line skeptics of PK's existence. But now that a presumptively TA, the TS, has proved to be inexplicable by any conventional hypothesis of image formation, parapsychologists would do well to pay greater attention to the Bélmez and analogous cases (for references see for example Tort, 1990a), since there is a chance that some of them are genuine PPOs.

A NEW PARAPSYCHOLOGY?

If the linked rings purported to be topological impossibilities, the Bélmez faces or other alleged TAs passed more preliminary tests, the PPO possibility would be taken seriously¹⁵. Then perhaps those who are striving to bring the study of the paranormal into the main body of science would consider the idea of creating a STURP-like project. Reviewing a book on TS, Karlis Osis wrote:—

¹⁵ In a personal communication, Cox (1990b) has informed me that his pair of linked rings are available for scientific examination. The same can be said of those owned by Wälti (1990a).

Being a veteran case researcher myself, I could not help but be impressed by the enormous interdisciplinary effort applied to the Shroud case . . . [T]he American STURP . . . expedition to Turin alone cost \$5,000,000. Eight tons of equipment were shipped to Turin and the evaluations were done with very sophisticated apparatus in STURP's own laboratories. Technological marvels were applied to testing the many brilliant hypotheses generated at conferences prior to the Turin expedition . . . I marvel at this effort and wonder what would happen if such human and instrumental resources were applied to the more complex phenomena of our field . . . I do hope that one day we will have a chance to apply such resources to the study of psi; perhaps then we will *know*, rather than speculate and conjecture from insufficient facts, as we do now. [emphasis Osis, 1985, p. 448]

The ultimate goal in 'PPO research' would be to develop *extraordinary evidence for extraordinary claims*. The momentum would come when alleged PPOs reached major laboratories around the world with research workers and Ph.D. investigators clamoring to study them. The implications for science would be so revolutionary that an international congress of experts to analyze this phenomenon would be organized. This is no wishful idealization: something akin to this scenario has already been implemented to scrutinize a most baffling relic; and the STURP enterprise may well inspire future investigations. The point is that PPO research—potentially a *new parapsychology*—offers a totally innovative strategy to vindicate the paranormal.

First, in PPO research parapsychology and psychical research would become one and the same. The dilemma with the former is that parapsychologists are profitlessly working with a very weak and degenerate manifestation of psi: micro-psi; whereas an almost total deprivation of controlled experimentation in qualitative spontaneous phenomena is the hindrance with the latter. This kind of Catch-22 situation would be ironed out in PPO research: the study of MACRO-psi *in the lab*. This 'dialectic synthesis', as it were, between psychical research and parapsychology, combining the best of both and eliminating the ineffectual in the two, would be unprecedented in the field¹⁶. For example, in PPO research it would not be necessary to deal with degenerate psi by means of the finest statistical net. Instead, the hard sciences (physics and chemistry) could be the basic tools in studying iconographic and topological impossibilities in the laboratory—presumably a more unambiguous and robust research on paranormality. This would bring the study of the paranormal into the main building of science through its front door instead of the back-door methods in vogue today: the non-repeatable statistical anomalies and experimenter effects.

Second, regardless of how bizarre the concept of paranormal imaging and the like may seem to our philosophical and scientific paradigms, if confronted with hard evidence mainstream scientific journals cannot help but accept proposed papers for publication. If PPOs do indeed exist, therefore, PPO research reports would allay the reluctance of conservative editors to referee them fairly, such as happened with the STURP data. For instance, when one considers the strong anti-psi bias of *Science* journal (see for example

¹⁶ It is true that studying a psychic falls also under the category of 'macro-psi in the lab'. But the repeatability problem is overshadowed there by the even nastier problem of deception (see Hansen, 1990—a much needed vindication of magicians' concerns about clever tricksters in a leading parapsychology journal).

McClenon, 1984, pp.114-18) it is remarkable that it published a sympathetic piece on sindonology in general and STURP in particular (Culliton, 1978)—see also asterisked references in this paper. And if journals like *Science* and *Nature* opened their columns to psi researchers, a process would begin by which their colleagues' and the broader academic community's acceptance of parapsychology might at last be produced.

Frankly, however, since the normal possibility is to be expected in the great majority of cases unless there is considerable evidence to the contrary—as there is in the extraordinary case of TS—I would not be altogether surprised if the Bélmez faces or the Silvio object turned out to be ingenious forgeries. (We have had so many false dawns! . . .) Nonetheless, the fact that ostensible PPOs clearly provide scientists with the opportunity to confirm or falsify the extraordinary claim is a real advantage.

CONCLUDING REMARKS

In his reply to Ian Stevenson's (1988) piquant complaints in *JASPR* with respect to parapsychology's isolation from other branches of science, John Beloff (1990b) has recently remarked in a letter to the editor that: 'Our situation would be transformed overnight if we were to discover a truly reliable set-up to present to our critics' (p.95; emphasis added). I can only add that, despite Hyman's suspicion cited above that substantial results will not be forthcoming in our lifetimes, if after TS more PPOs are spotted in the near future and sufficiently tested, with reports being published in mainline journals, parapsychologists will then be adequately prepared to challenge the scientific community with the sort of evidence that it cannot ignore.

Needless to say, the issue at stake here is one of epochal potential implication (see for example McClenon, 1990).

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¹⁷ * These are only some of the published scientific papers of STURP.

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